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ABSTRACT

This description of career education activities in Greenland, Arkansas, was prepared as part of a study conducted to identify evaluated, exemplary career education activities which represent the best of the current career education programs and practices referred to in Public Law 93-380. (See CE 018 212 for the final report of this study.) This document describes one of the ten projects that were selected from among 250 projects submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Each of the ten projects are reported in a similar format, including the following descriptions: project overview; program development; materials and activities; parent and community involvement; staffing and management; costs; evidence of effectiveness; and conclusions. In this report of the Boston Mountains Educational Cooperative Career Awareness Project (CAP) the ultimate goal is stated as follows: to provide awareness of adult occupations among students, along with regular instruction in basic academic areas. (Special emphasis is placed on showing students that the studying they are doing in school is important and related to work they will encounter outside of school.) The primary subjects are identified as students in grades K-6 in six area schools, and the evaluation design is described as a posttest-only design using comparable groups of treatment and control students. (BM)

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PROJECT CAP

Boston Mountains Educational Cooperative

Greenland, Arkansas

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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CE 018 216

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the staff of Project CAP and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Project CAP materials are judged to be free of bias with regard to race, sex, age, income levels, and type of occupation.

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Appendix E: The Means, Standard Deviations, t-Values, and Significance Levels for Treatment and Control Schools on Three Tests

PROJECT OVERVIEW

TITLE & LOCATION: Project CAP (Career Awareness Program)
Boston Mountains Educational Cooperative for Federal Programs
Box 13
Greenland, Arkansas 72737

TYPE: Infusion

PROJECT DIRECTOR: Jeanne Leffler
Ph: (501) 443-3336

SETTING: This project serves students in grades K-6. In 1976-77, the project was implemented in six of the eight schools comprising the Boston Mountains Educational Cooperative headquartered in Prairie Grove, Arkansas. The cooperative is a consortium of eight school districts in a rural, mountainous area of northwest Arkansas. The estimated population in the geographic area served is 16,000 persons with a school enrollment of 5,100. Ninety percent of the population is from rural farm families; the remaining 10% are considered rural non-farming families. The project is presently functioning in 19 schools under a statewide dissemination program funded by ESEA Title IVC funds and funds from the State Department of Education.

STAFF: The Project CAP staff consists of a half-time project director, two curriculum coordinators, a bookkeeper-secretary, and a machine operator.

GOALS: The goals of Project CAP are to provide awareness of adult occupations among K-8 level students, along with regular instruction in basic academic areas. Special emphasis is placed on showing students that the studying they are doing in school is important and related to work they will encounter outside of school.

EVALUATION DESIGN: The impact upon students of Project CAP activities implemented in 1976-77 was assessed by testing comparable groups of treatment and control students in February and March 1977.

MATERIALS: Project CAP uses staff-developed Learning Activity Packets (LAPs) and other materials. At each grade level, two packets in each of 15 USOE occupational clusters plus two packets on self-awareness were developed, for a total of 32 packets at each level. The packets are sequential and blend easily into the regular curriculum, with career stories and academic skills infused into the appropriate regular lesson without requiring additional time.

COST: The main cost items are 32 Project CAP LAPs for each student at each grade level; a teacher's manual at each grade level; and evaluation instruments. Potential additional costs include teachers' time spent in a pre-school year inservice training workshop.

PROJECT DESCRIPTION

The purpose of this section is to describe the origins of Project CAP and its staff-developed instructional materials, the management system, the participation of the community, the costs of implementing the program, and the available evidence for documenting its effectiveness.

PROGRAM DEVELOPMENT

Project CAP was developed with ESEA Title III funds by the Boston Mountains Educational Cooperative for Federal Programs, headquartered in the small mountainous town of Prairie Grove near Fayetteville. The cooperative pools the resources of eight school districts to develop needed programs for area school children, programs that might not be available to individual school districts.

Relation of the Project to the Target Population

Project CAP is a cooperative effort involving six school districts that are members of the Boston Mountains Cooperative in northwest Arkansas. The participating districts are: Elkins, Farmington, Greenland, Prairie Grove, West Fork, and St. Paul. Five of these districts are located in Washington County and one is located in Madison County. The estimated population in the geographic area served is 16,000 persons with a school enrollment of 5,100. Ninety percent of the population is from rural farm families; the remaining 10% are considered rural non-farming families. Fifteen percent of all families in Washington County and 33.1% in Madison County are classified as having an income less than the poverty level. The percent of all families having an income less than 75% of the poverty level was 9.8% for Madison County and 8.6% for Washington County. The median ages for Washington County is 25.3 years. The median age in Madison County is 35.0 years.

The school population is predominantly Caucasian as evidenced by the fact that there are only eight students who are American Indian and two who are Vietnamese. The age span of students in the target population range from nearly six years of age to just over 15 years of age. The number of years of teaching experience represented by the cooperative schools in Project CAP reveals a rather typical pattern. There are very few first year teachers and only thirty 5-year teachers. The average length of experience among teachers is about 10 years. Additional key characteristics of the target population are shown in the following chart.

	Enrollment K-12	No. of Teachers	Assessed Valuation	Area of Square Miles
Elkins	518	26	2,878,495	98
Farmington	771	40.5	5,487,535	33
Greenland	521	28	4,328,695	83
Prairie Grove	880	44.2	5,628,430	108
St. Paul	364	20.7	1,912,190	271
West Fork	824	38.9	3,324,365	131

Needs Assessment

Needs for student career awareness and skills in decision-making, creativity, forecasting, planning, and communication became apparent as the result of a two-phase needs assessment. The preliminary assessment of needs was conducted utilizing a survey and interview method. The total ninth grade population of the six school districts involved in the project was surveyed. All secondary level counselors and school administrators were surveyed, and selected parents and local business people were interviewed. The results of these surveys and interviews indicated a general need for increased career awareness. The next phase of the needs assessment was more specific and involved teachers, administrators, the total eighth grade population in the six school districts, parent groups and civic groups.

The following are the results of the ninth grade student survey in each of the six school districts: (1) 64% had made no vocational choices, (2) 58% felt that they did not have enough information to make a wise choice, and (3) 72% reported that it would have been beneficial to them if they had been given career information in the first eight grades. Eighth grade students in each of the six school districts were surveyed with the following results: (1) in response to the question: Would you like for your school classes to include learning about all kinds of jobs?, 63% replied -- yes, 25% replied -- no, and 13% replied -- don't know; and (2) in response to the question: Would learning about all kinds of jobs help you make better decisions about what you plan to do when you "grow-up"?, 71% replied -- yes, 15% replied-- no, and 14% replied -- don't know.

A copy of the survey instrument used to collect the eighth and ninth grade student needs assessment data is included in the Appendix.

The secondary level counselors surveyed responded that in some schools barely 5% of the ninth grade students had what appeared to be adequate career

awareness prior to entering ninth grade. Across all six school districts, the results of the counselor survey showed that counselors felt only 18% of incoming ninth graders had adequate preparation in career awareness.

Results from the survey of teachers of grades one through eight in the six school districts showed that: (1) 96% responded that students did not understand self in relation to the world of work, (2) 92% believed that the students did not have an awareness of realistic alternative choices in the world of work, (3) 91% reported that there was a need for career awareness as a part of the regular school curriculum, and (4) 95% expressed a willingness to participate in a career awareness project.

Each of the school districts had PTA or other community group meetings to discuss student career awareness needs and how best to fulfill them. Civic clubs in those school districts having such clubs met to discuss the same concerns. Reports from such meetings indicated that all groups viewed career awareness as a critical student need and that they all pledged their support to the development of a program to meet the need. In addition to the informal sampling of opinions of parents and civic leaders, numerous persons operating businesses within each of the districts were interviewed by the respective school superintendents. When interviewed, they all stated that career awareness was of prime importance.

School district superintendents and principals from all six districts indicated their view that the major career choice made during high school is whether to attend college or not. In addition, they contended that career awareness should be given top priority and that a properly conducted career awareness program in grades one through eight would provide valuable information in planning the curriculum needs of high school students.

On the basis of the survey, interview and discussion data described above, staff of the Boston Mountains Cooperative derived two career awareness needs. First, there is a need to broaden the knowledge of students regarding the world of work. Second, there is a need to develop as soon as possible in students the attitudes and skills required to enter that world. The communities that comprise the Cooperative are rural. As a result, students learn only of the existence of a limited number of adult occupations. Their greatest supplementary source is the media, which is not available to all children and which presents a distorted and unrealistic view of many careers.

The fact that youth in the communities making up the Cooperative learn only about a few, highly publicized careers underscored two key problems. First, a high proportion of the youth now in the Boston Mountains schools migrate

to find work. This is because there not only is a limited number of kinds of jobs but also because there is a limited number, en toto. This rural to urban movement of youth has been prominent on the American scene since the 19th century; however, no longer are cities filled with opportunities for unskilled workers. Rather, urban slums keep growing as the result of the rural arrivals; the situation is as true for whites as it is for blacks.

Second, food processing and other industries have been moving into the area of the Boston Mountains Cooperative. However, because of the lack of career education and vocational education, a pool of labor above the unskilled level has not existed. To staff properly, the new industries have had to import personnel for the higher paying jobs. The result has been no improvement in the lives of local families even in the fact of economic growth.

The meaning is clear: unless youth can have their horizons broadened and be equipped with the understandings and general skills promoted by career education, they are at a serious disadvantage, whether they migrate or not.

Program Planning

The needs assessment indicated that career awareness was of prime importance. Therefore, the six superintendents who comprised the administrative council of the Cooperative met to discuss the educational needs in career education and to plan appropriate strategies. It was decided that the program planning should have input from all school personnel, students, parents and community groups. In addition, various successful models of programs in career awareness were studied: (1) Project Impact, Des Moines, Iowa; (2) Project Implode, Bella Vista Schools, Salt Lake City, Utah; (3) Talents Unlimited, Mobile, Alabama; and (4) Career Education Program, Cobb County Schools, Marietta, Georgia. One of these model programs, Project Implode, was visited by Cooperative staff and a review of research findings on the topic of career awareness programs, grades K-8, was conducted. In addition, several college professors consulted with Project CAP staff, providing helpful ideas and materials.

Based on the needs assessment data and the planning process summarized above, an overall program goal and related objectives were written.

> Goal: All students in grades one through eight should be given career awareness in pyramiding structure so that upon completion of the eighth grade the student would be able to express specific interest in a particular, realistically chosen, career cluster.

This goal represented an optimum situation; however, it assumed that 90% of

the students had the desired information upon completion of grade eight together with a realistic view of his or her abilities and interests, to make wise choices as a result of wise planning and forecasting. The results of the needs assessment showed that the above statement was not true within the six school districts. Further, it was concluded from the needs assessment data that only a relatively few students are sufficiently informed to realistically choose secondary school courses related to a career except those pertaining to college preparation.

The following process objectives were specified to ensure accomplishment of the above goal.

Objective 1: To establish an effective career awareness program for students in grades one through eight.

Objective 2: To produce career awareness learning packets which provide career awareness as well as a learning experience in subject areas such as math, reading, science, social studies and language arts.

Objective 3: To develop a sequential curriculum for the program written in behavioral terms.

Objective 4: To achieve total parental involvement in the program, leading to community acceptance and appreciation for the dignity of all occupations.

Objective 5: To develop a program management system that is totally accountable.

Objective 6: To record project activities in a step-by-step operation to permit duplication of this project in other districts if it is shown to be successful.

To measure the impact of the career awareness program on students, project staff decided to develop one data collection instrument on their own and to select another instrument developed by an independent test development organization. Assessment of the process objectives were to take place through the use of weekly status reports, checklists, questionnaires, etc.

To obtain funds for the project, a proposal was written and submitted to the Arkansas State Department of Education which administered federal Elementary and Secondary Education Act Title III funds for the state. The proposal was approved and funding started in July 1974, in time to prepare and conduct summer workshops for the 1974-75 school year.

CAREER AWARENESS MATERIALS AND ACTIVITIES

Career awareness was not thought of as another subject to add to the already crowded elementary curriculum, nor were teachers expected to subordinate subject matter to career education objectives. On the contrary, teachers were expected to pursue the effective teaching of their subject matter assuming that the content of career awareness education and the basic skills that form the heart of the elementary and middle school curriculum can both be made most meaningful to students if they are taught together.

A variety of ways were explored for infusing career awareness into the regular curriculum. They included: (1) learning centers, (2) resource people, (3) field trips, (4) films, (5) hands-on experiences, (6) role play, (7) games, and (8) learning activity packets. Among these approaches, project staff selected learning activity packets as the primary means for infusing career awareness into the existing curriculum. Project CAP learning packets were developed to show students that school subjects are important and related to the world of work by pairing a specific academic skill with a selected occupation. As teachers blended this career information into the various subject areas, they added a measure of relevance and practicality to the instructional process. One of the key expectations stressed by Project CAP was for every teacher to emphasize the contribution that subject matter can make to a successful career.

It was assumed that Project CAP learning packets would assist students in becoming aware that a subject matter area with its associated skills has actual value for their present and future achievement of goals. For example, in the study of fractions in the upper elementary grades, the occupation of chef is discussed. A chef's job involves the measuring of ingredients, such as 1/2 teaspoon or 1/4 cup. Students can see the importance of learning fractions, especially for this worker. In another example, the skill of telling time on a clock is linked to the occupation of cosmetologist in a learning packet that describes the importance of keeping track of time so customers are not kept waiting.

The curriculum was revised to include a scope and sequence chart that presented occupations and career education concepts to be taught across the 15 U.S. Office of Education clusters as well as a self-awareness cluster. Students would be exposed to a variety of occupations from entry level to the professional level in these 15 occupational clusters, which are shown on the next page. It was expected that through these clusters, students' perceptions and knowledge of the scope of the world of work would be broadened.

15 USOE OCCUPATIONAL CLUSTERS	
Agri-Business	Manufacturing
Business and Office	Marine Science
Communication	Marketing and Distribution
Construction	Personal Service
Consumer and Homemaking	Public Service
Environmental Science	Recreation and Hospitality
Fine Arts and Humanities	Transportation
Health	

In providing career awareness, each learning activity packet contained career information, academic information, and activities to heighten self-awareness.

Materials Development

The packets were written by Project CAP Coordinators and revised each year of the project based on feedback from participating teachers. For each grade level, two packets in each of the 15 occupational clusters plus two packets on self-awareness were developed for a total of 32 packets at each level. Since each packet was written linking an academic skill with an occupation, it could be infused into the ongoing curriculum by the content of the occupation or by the subject matter of the academic skill. The development cycle showed that in 1974 packets covering three occupational clusters were written, in 1975 the number of clusters covered increased to five, and in 1976 the final seven clusters were treated through packet development. At each grade level, a teachers' manual was written that included a sample lesson plan. A copy of a sample CAP packet (Environmental Scientists: Grade 7) is included in the Appendix.

Packet Components

Career Information. First, work is presented as a way of life. In the CAP packets, all types of work are presented as being respectable and necessary to society. Students are aided in discovering ways in which work can become a meaningful part of their lives. Second students are made aware of the tasks performed by workers on specific jobs. Next, information is included on the tools that workers use on their jobs. This might range from a familiar tool, such as a tape measure for a carpenter to complex equipment, such as a computer

that a systems analyst uses.

Each packet includes an explanation of the attitudes that are important for each occupation. For example, sales people must enjoy working with the public and accountants must enjoy math and be attentive to detailed work. Each occupation requires a certain amount of training or education and students are given information on what kind of education that would probably be necessary for each career. For example, some jobs can be obtained with a high school education or less, others require on-the-job training, others require advanced technical or vocational school, while still others require a college degree. Finally, students are made aware of the economics of the career introduced in each packet. Statements such as "This person would make enough money to live comfortably," or "This person makes a high salary" are inserted to help students become aware of the financial benefits enjoyed by different workers.

Academic Information. As students progress in career awareness, they become increasingly aware of the connection between academic skills and the world of work. Each CAP packet contains activities for an academic skill necessary to the performance of the particular occupation included in the packet. The academic portion usually includes three sections: (1) introduction of the skill, (2) practice activities for that skill, and (3) a posttest over the career information or the academic skill. The activities may be used at the beginning of a unit to introduce the skill, as practice or reinforcement for skills already introduced, or as an evaluation at the end of a unit. Packets were designed to be used whenever teachers feel that the academic content of the packet would be most beneficial to their classes.

Self Awareness Activities. Students are able to explore and analyze their own feelings related to each occupation introduced through the learning activity packets. In the awareness stage, grades K-6, students are not asked to make decisions; rather, the packets introduce students to activities that will broaden their awareness so that in future years they may gain satisfaction with the work they do. It is necessary for students to recognize personal characteristics, needs, wants, and values for meaningful career development to occur. Activities and questions incorporated into CAP packets provide students with opportunities to better understand themselves. They begin to view themselves as unique human beings with a personalized contribution to make to the world of work.

Instructions to Teachers. Each packet includes a teacher page that lists performance objectives, summarizes the occupation, describes the packet and

offers suggestions for how to use it. Teachers are instructed in how to use and score the posttest that covers both career concepts and the academic skill. Bulletin board materials of printed letters and pictures, as well as a suggested layout, are provided. Teachers are encouraged to vary or add to the materials in any way they choose.

Implementation. Packets targeted for use in grades K-6 are designed to be completed in varying amounts of class time, from 20 minutes up to three days (if one or more students turns it into a class project), and to be infused into the ongoing curriculum. Packets for grades 7-8 are designed to occupy the same amount of class time, but they are occasionally used as separate units rather than being infused into the curriculum. Packet lists are distributed to participating teachers so that they can request CAP packets to fit into their lesson plans. Teachers are encouraged to use packets at the rate of at least one per week.

For example, the CAP packet on Meterologist (5th grade) was infused into the weather unit in the science curriculum, permitting the description of this occupation to be interrelated with academic subject content. The learning activities involved students sometimes in individual work, sometimes with partners, sometimes in committees, and sometimes the entire class participated. One student became so interested that he did a class project on what was involved in becoming a meteorologist. At the conclusion of his project, he performed a skit as a TV weatherman for the entire class.

Those schools or school districts wanting to adopt or adapt Project CAP materials and activities should schedule a short workshop prior to the beginning of the school year. Participating in this workshop would be key administrators and teachers responsible for planning the implementation of the project and for setting up inservice/pre-use teacher workshops in each of the target schools. During these workshops, planning for the delivery and use of the materials, time scheduling, etc. would be stressed. In addition, academic skills of the various packets would be cross-indexed with the regular curriculum and approximate use dates of each packet would be designated in teacher planning books. Detailed project management procedures should be spelled out for project staff, principals and project teachers to follow along the lines of the discussion that follows under STAFFING AND MANAGEMENT.

Reactions to Materials and Activities

In general, students looked forward to using the packets and teachers were

very responsive to incorporating them into their classrooms. Based on a study of the weekly status reports and monthly summary sheets for all three years of the project, approximately 80% of participating teachers used all of the grade level packets in their classrooms. The remaining 20% of the teachers used most of those packets that were available. Parental reaction was also very positive. Two packets (waitress and dietician) on basic food groups at the second grade level illustrate packet impact on parents. In addition to such in-class activities as going step-by-step through sample menus and making bulletin board displays of menus that had to include the four food groups and outside-class events such as walking tours to the school lunch room and to grocery stores, there occurred "spin-off" activities involving parents. For example, students brought snack foods, available at home, to school and discussed how they did or did not fit into the four food groups. Later, they talked with their parents about upgrading the nutritional value of their snack foods. To cite another example, students in one classroom activity prepared highly nutritious sandwiches. Parents later reported their children preparing the same type of sandwich at home that they had put together previously in their classroom.

Teacher reaction data were collected in March 1978 from the teachers at Prairie Grove Elementary School. The teachers were asked to respond in writing to the question: "Can you give a brief acount of the Project CAP program and your use -- or nonuse -- of the materials?" The specific comments of each teacher are shown below.

Reactions of Prairie Grove Elementary School Teachers to Project CAP

Teacher A: I use the materials mainly as a supplement for independent reading. I usually pass them out and let the children read them. The skills that the units use are very good. We usually go over the skills lesson before they do it. I try to correlate the occupation with something we are studying or choose one that teaches a skill we are studying at the present time. The packets are very informative and well done.

Teacher B: Of all the federal programs we've had recently, this is one of the best...

I use the packets in two ways. One, as an activity in its own right. This is especially helpful when there are 10 or 15 minutes left in a period; it is a great "fill in."

But mainly I use the packets to correlate with the subject areas. I have ordered packets that correspond to many of the concepts that are taught at my grade level. For example, when

we study dictionary skills in English, I use the packets with my teaching unit. They are well prepared and a great help.

Teacher C: The project helped the children learn about many different jobs. We used the packets as extra work. The work at the back of the packets was useful as extra practice on the skills we had been working on in math and other areas.

Teacher D: It was more beneficial to me to be able to order just the packets I needed -- use them as they coincide with what we are working on in the room -- use as supplementary work. If an occupation is familiar to the child we discuss it. Children are then allowed to take the packet home after grading the test at the end.

Teacher E: I used them last year for my remedial reading and math program. I enjoyed them because they had many different levels for the materials and my students were on so many levels. It has been hard to get to them regularly this year because of so much material to cover in other subjects. I plan to use them as an extra activity for some this last nine weeks.

Teacher F: I have used the CAP material since its beginning. I like the fact that a learning skill is included with each. They make <u>good</u> fillers in the subject area for reinforcement, or sometimes introducing a new concept. The children seem to do well on the quiz section about the occupation, so they must <u>enjoy</u> learning about them. Some packets, of course, students relate more to than others and we go beyond the material given. I enjoy having them.

Teacher G: I enjoyed the packets immensely last year. We used at least two a week. The packets were enlightening with very good skills.

Teacher H: I have used a lot of the packets of CAP materials this year. When I have a few minutes of free time, I pass out the materials and we read, discuss and answer questions.

TEACHER I: Whole class -- general information regarding careers. Small groups -- reinforcement of specific skills being taught in the classroom.

When I ordered packets last Fall, I ordered with specific skills in mind. I fear the career was secondary.

<u>Teacher Reactions to Project CAP Staff</u>

Although there were a few teachers across the six participating schools who incorporated the minimum number of CAP packets into their classroom activities, the vast majority were very supportive of the CAP program and its staff. A key to their positive response was the fact that Project CAP coordinators were not

viewed as supervisory personnel and, therefore, were not seen as threatening. A more heavy-handed approach might well have "turned off" many teachers and principals.

PARENT AND COMMUNITY INVOLVEMENT

A major concern of the project is parent and community involvement. The Lay Advisory Council, which shares the responsibility for overall governance of the project with the Administrators' Council, is comprised of one member from the Community Councils in each of the six participating school districts. Thus, the role of the Lay Advisory Council is not merely advisory; it has a major supervisory function in the project.

To inform each of the communities in which Project CAP operates, Coordinators regularly speak at meetings of such civic groups as Lions Clubs, Junior Civic Leagues, and Rotary Clubs, and at PTA and school board meetings. Additionally, newsletters containing articles written by teachers and students who participate in the program are sent home with each student. A copy of a sample newsletter is included in the Appendix. Teachers are given a booklet entitled "CAP Resource People" that lists the names and addresses of community members who have volunteered to visit classes, or whom groups of students may visit to discuss their occupations. Parents are also invited to class to describe their occupations and their personal career development.

STAFFING AND MANAGEMENT

Staffing

To plan and carry out a program of career awareness as defined by the goal and objectives stated earlier, a set of project advisory and staff positions was established. These positions are listed below and described according to scope of responsibilities and major functions.

Administrators' Council. The Administrators' Council is, in effect, a grand council of the attendance area school administrators. It is composed of the superintendents of each participating school and shares authority for the project with the Lay Advisory Council. In its position of shared authority, the Administrators' Council affects the organization of each cooperating school as follows:

Functions:

1. The Administrators' Council coordinates the efforts of the cooperating schools so that the overall project goals can be accomplished. This is interpreted to mean that the total efforts of all project personnel are rendered available to the participating project schools.

2. The Administrators' Council aids in achieving the project goals, specifically, the goal of achieving a workable partnership between home, school, and community.

3. The Administrators' Council, in joint session with the Lay Advisory Council, considers, reviews, and advises the project director concerning community needs, attitudes, and opinions.

4. The Administrators' Council, in joint session with the Lay Advisory Council, reviews project reports written by the project director that need the expertise and points of view unique to the two representative bodies.

Lay Advisory Council. In joint session with the Administrators' Council, the Lay Advisory Council shares the authority for the project. The Lay Advisory Council is, in effect, a grand council of the attendance area citizens. It is composed of one voting member and one non-voting alternate from each Community Council. The Community Councils represent a cross-section of the communities cooperating in the project. The membership of the Lay Advisory Council and its relationship to the Community Councils from each school district are displayed below.

Community Council and Lay Advisory Committee

(*indicates Lay-Advisory Member)

Elkins Community Council

* Support personnel, Title I & Migrant, female
Nurse's Aide, City Hospital
Teacher, Elkins
Cook at School, Elkins
Campbell Soup Line Worker
School Bus Driver, Carpenter

Farmington Community Council

* Teacher, female
Service Station Attendance
Housewife, Mother
Factory worker
Electrician

Greenland Community Council

* School Nurse, Female
Registered Nurse
Pressman, Standard Register
Teacher

Prairie Grove Community Council

* Lumber Company, male
Housewife
Teacher substitute
Secretary
Housewife
Grocery Store Manager
General Contractor

St. Paul Community Council

* Interior Decorator, male
  Farmer
  Chicken Grower
  Housewife
  Truck Driver

West Fork Community Council

* SWEPCO Supervisor, Male
  Grocery Store Owner
  Personnel Manager, E.P.C.
  Telephone Lineman
  Lunchroom Supervisor
  Catalog Order Clerk, Wards
  Baldwin Piano Worker

The functions of the Lay Advisory Council are the same as those for the Administrators' Council.

Project Director. The project director is the point from which all other organizational authority and responsibility emanate. Although functions and authority are delegated to others within the organization, it is recognized that accountability resides within the project director's office.

Functions: The project director:

1. meets in joint session with the Lay Advisory Council and the Administrators' Council during their scheduled meetings and presents "State-of-Project" reports to the two councils. Additionally, the current problem areas experienced by the project personnel are presented for both the advice and help of the two councils in the resolution of these difficulties.

2. carries out, either personally or by specific delegation, the project dissemination functions.

3. arranges for evaluations on all project personnel by the relevant project management personnel at least once every three months.

4. manages all financial and property procurement authorizations as well as their accountability documents.

5. recommends to the council for ratification all personnel to be hired.

6. terminates project personnel, when appropriate, and after following approved project procedure.

Skills and Abilities Required:

1. Education: Master's degree in Education is considered a minimum requirement. Advanced work in vocational education and supervision is desired.

2. Experience: A supervisory position in the public schools for at least three consecutive years is required.

Curriculum Coordinator. Accountable to the project director, the curriculum coordinator represents project management in each individual school in the cooperative. It is the responsibility of the curriculum coordinator to help the teachers in grades K-8 with their project efforts, and to coordinate the curriculum activities of the teachers within the school. The curriculum coordinator serves as staff to the appropriate school principals on all matters pertaining to the project effort in the school, helping to phase the project into the normal operation of the school with a minimum of disruption.

Functions: The curriculum coordinator:

1. is responsible for the project in each individual school.
2. produces a weekly status report on the last work day of each week, and mails it (no later than Friday of that same week) to the project director.
3. coordinates the use of learning activity packets and ensures that additional packets are reproduced and distrubuted to the schools when needed.

Skills and Abilities Required:

1. Education: a Master's degree is considered a minimum requirement.
2. Experience: valid teaching experience in the public schools is mandatory.

Secretary/Bookkeeper. The project director's secretary/bookkeeper coordinates the project's schedule and reproduction needs with the Machine Operator and manages all routine records, filing, typing, reproduction of project material, and other duties normal to office routine as assigned by the project director.

Functions: The secretary/bookkeeper:

1. maintains the project's books (fiscal records) and prepares all necessary reports.
2. maintains inventory records of all project equipment and materials as assigned.
3. maintains a complete schedule of project goals and objectives, and when they are completed.

4. establishes and maintains, as directed, the filing system and document retrieval indexes that will provide ready access to the record of project implementation.

Clerk Typist. The clerk-typist's responsibilities are carried out under the direct supervision of the secretary/bookkeeper.

Functions:

1. typing and reproducing field test packets and other project materials.
2. typing status reports and other materials emanating from the schools.
3. establishing and maintaining project inventory records of equipment, materials, supplies, etc., located at the schools.

Machine Operator. This job includes volume reproduction of all project documents and curriculum packages and maintenance of supply lines between cooperating project schools.

Functions:

1. reproduces packets, project newsletters, and other project materials in the quantities required.
2. delivers educational materials from the project administrative offices to the various cooperating project schools as required.
3. coordinates the material needs of each cooperating project school.

Skills and Abilities:

Office Machines: Requirements include a functional knowledge of off-set presses, mimeograph duplicators, and typewriters and a functional capability in the handling of all reproduction equipment purchased by the project.

Principal (Elementary and/or Middle School). The principal's administrative duties involve the total school effort at the elementary and middle school level and, therefore, is in a key position to affect project implementation. It is therefore apparent that the principal, the curriculum coordinator, and the project director must work together closely, remembering that the project goal is but one of the many goals at each school. The principal prepares a status

report on the last regular school day of each week. The status report is mailed to the project director no later than Friday of the same week. The status report is designed to provide project management with an administrative overview of project activities within the school and from the perspective of the legally responsible operating administrators.

Elementary and/or Middle School Teacher: Project Teacher. Without question the project succeeds largely on the effort, the attitude, and the demonstrated cooperation of the project teacher. The project teacher: (1) works with the curriculum coordinator to develop the expertise necessary (a) to understand, evaluate, and diagnose the students' actual needs, abilities and interests, (b) to use and evaluate career awareness curriculum materials specific to each individual student, and (c) to apply that expertise; and (2) prepares a weekly status report on the last regular school day of each week.

Management Strategies

A short status report is completed each week by every participating teacher and principal, providing a communication channel between school staff and project CAP coordinators and a means by which the Project CAP director can monitor implementation of project-related activities. These status report forms are displayed on the next page.

There is periodic follow-up with teachers regarding their usage of packets. Every two months, the project director informs the six participating principals of packet usage by their teachers. In addition to the data on packet usage obtained from the teachers' weekly status reports, project staff gain useful information on teacher implementation of career packets and other career activities from project-designed planning and summary sheets. The General Planning List is furnished to aid teachers in scheduling the usage of the packets at the beginning of the school year. The titles of all packets available at a given grade level are listed across from columns for each of the months in the school year. Teachers are encouraged to put a check mark under the month in which the packet is to be used.

The Summary Sheet is intended for use in reporting monthly progress. It includes the titles of all available packets and a space at the top to write in the name of the month. Opposite the name of the packet used, check marks are placed. Information on activities involving career-related people, resource people, and field trips are also included. At the end of each month, two copies are given to the principal. Space also is available for teachers to express their subjective reactions to the effectiveness of the materials.

PRINCIPAL'S WEEKLY STATUS REPORT

Name: _____ School: _____ Date: _____

Project personnel that visited you during the week:

_____ _____

Comments on their visits:

Do you have enough information about the project? ☐ yes; ☐ no
If no, please state the need and/or the project personnel you want to talk with:

In general, are the project activities in your school satisfactory, in your opinion? ☐ yes; ☐ no

Comments and suggestions on the project:

TEACHER'S WEEKLY STATUS REPORT

Teacher: _____ School: _____ Date: _____

Name of Packet Used This Week: _____

Check the following which apply to you this week.

____ Met with Coordinator
____ Received materials from Coordinator
____ Resource Person Name: _____
____ Field Trip, Where: _____
____ Additional Career Awareness Activity, What: _____
____ Need to see Coordinator

Comments: _____

_____

_____

_____

Inservice Training

To prepare teachers in participating school districts to implement the Project CAP program, inservice workshops are held in the summer preceeding the school year. The workshops last three days. The following topics comprise the curriculum for each workshop:

- Developing a philosophy of Career Education and Career Awareness
- Concepts in Career Education and Career Awareness
- Planning for Career Awareness in the Classroom
- Planning Learning Centers for Career Awareness
- Using Community Resources

Following the session on "Planning for Career Awareness in the Classroom," the workshop participants meet in small groups and develop classroom units in career awareness. After the workshop session on "Planning Learning Centers for Career Awareness, the teachers divide into small groups and develop plans for setting up such learning centers in their own schools. In addition, when the session on "Using Community Resources" is concluded, teachers are asked to recommend names of resource people from their respective communities. Using information furnished by the participants, Project CAP staff later contact the recommended resource persons. A profile is written on each community person who agrees to serve as a career resource contact. At the end of the summer, all the profiles are put together and published in a booklet, entitled "CAP Resource People." Copies of the booklet are distributed to teachers in the participating schools. A sample page from the booklet is included in the Appendix.

During the course of each school year, inservice training is conducted on an individualized basis while coordinators are carrying out weekly visits in the schools. Each teacher receives training concerning how to use and enrich the instructional packets, while the coordinators receive suggestions for improving packets and ideas for developing new ones.

COSTS

The 1974-77 budget for Project CAP was $204,427. The six participating districts paid $47,856 of that amount. The average cost per student, per year was $22.56. Costs for salaries included the project director, two curriculum coordinators, a secretary/bookkeeper, a clerk-typist, and a machine operator. The school districts provided office space for the director and coordinators as well as space for packet development work, printing, and packet storage. The following table presents costs for the three years of project development.

Table 1: Costs

	1974-75	1975-76	1976-77
Project Personnel	59,382	58,061	55,328
School Personnel Training	3,993	2,966	3,741
Equipment, Materials, and Consumables	7,687	9,486	3,783
	$71,062	$70,513	$62,852

The estimated costs of replicating the Project CAP program in an adopting school are shown below:

Table 2: Replication Costs

ITEM	COST
Set of 32 consumable packets	$1.00 per student*
Teacher's manual for each grade level	$2.00 per manual*
Consultant fee (optional)	$200.00 (2 days of a Project CAP consultant, at $100 per day) plus travel expenses

*does not include shipping charges

EVIDENCE OF EFFECTIVENESS

Interpretability of Measures

Project CAP staff administered two data collection instruments, one project-developed and one developed by an independent test development organization.

The Career Awareness Test (CAT). The CAT is a staff-developed instrument comprised of 30 multiple choice items and designed to measure knowledge of selected occupations and the training/education required to enter them. The instrument has three different versions: one for grades 1-3, one for grades 4-6, and one for grades 7-8. It is designed for group administration and the questions are read orally by the examiner.

Validity of the CAT. Prior to the drafting of items for the CAT, a review of relevant literature and materials was conducted. The Encyclopedia of Careers and Vocational Guidance, the Occupational Outlook Handbook, materials from Ohio State University's Center for Vocational Education, from the Oklahoma State Department of Vocational Education, from Cobb County, Georgia, and selected commercially published materials were reviewed. Based on this review, Project CAP staff selected 15 occupations from each of the 15 U.S. Office of Education career clusters. These occupations were selected on the basis of present and forecasted demand, and were representative of the full range of positions on the career ladder from entry level through professional level.

Using the total of 225 occupations across the 15 career clusters as their reference group, Project CAP staff wrote a minimum of 10 test items for each of the 15 clusters. These 10 or more items for each of the 15 clusters were administered to a pilot class at each of the levels to find the most discriminating items. An item analysis was conducted on the results obtained from each of the pilot classes. The two items from each cluster that best discriminated students according to their knowledge of occupations were combined to form separate 30-item versions of the instrument for each of the three levels.

Reliability of the CAT. To determine the reliability of the three versions of the CAT, each version was administered to 100 students at the respective grade levels. Each version of the instrument was divided into two equal parts and the scores on one half were correlated with the scores on the other half by computing Pearson Product-Moment correlations (corrected by the Spearman-Brown Prophecy Formula). The following internal consistency reliability coefficients were obtained:

Level	r
Grades 1-3	.68
Grades 4-6	.77
Grades 7-8	.71

The Career Knowledge Test. Published by Evaluative Research Associates, Inc., St. Louis, Missouri, the Career Knowledge Test is designed for students in grades 1-3 and assesses their knowledge of the world of work. Project CAP staff selected the Career Knowledge Test because the items included in it test knowledge of occupations which are representative of all 15 U.S. Office of Education clusters. It is a 30-item picture instrument in which items test knowledge of the similarities and differences of various occupations and of their required tools. The reliability of the instrument is shown by a reported internal consistency reliability coefficient of .85.

The Orientation to Career Concepts/Worker Activities Scale. Also published by Evaluative Research Associates, the Orientation to Career Concepts instrument includes a series of scales designed to measure career awareness of students in grades 4-8. Project CAP staff selected the Worker Activities Scale because it measures knowledge of what different workers do in various occupations that are representative of the 15 U.S. Office of Education career clusters. It is a 20-item scale; items were written in a five-response, multiple choice format. The reliability of the scale is evidenced by a reported internal consistency reliability coefficient of .76.

Credibility of Evidence

Evaluation Design. Project CAP staff used a posttest only, matched control group model to evaluate the effectiveness of the project activities. To serve as control schools for the schools in the Boston Mountains Cooperative that participated in the project, six schools outside the Cooperative having no formal career education programs were selected. These schools were matched with the project schools with respect to: (a) school population; (b) number of teachers; (c) expenditures/ADA; (d) average daily attendance; (e) average assessed valuation; (f) geographic location; (g) socioeconomic factors; (h) curriculum; and (i) other contextual variables.

Evidence of Comparability of Treatment and Control Schools.

- Population of treatment and control schools

Project Schools: Population

School	Grade 1	2	3	4	5	6	7	8	Total
Elkins	34	34	30	43	49	22	44	50	306
Farmington	54	41	56	49	51	53	59	58	421
Greenland	23	27	32	29	38	45	45	47	286
Prairie Grove	88	76	71	80	67	71	56	58	567
St. Paul	28	27	44	21	28	30	20	35	233
West Fork	65	63	56	54	70	77	67	88	540
TOTAL	292	268	289	276	303	298	291	336	2353

Control Schools: Population

School	Grade 1	2	3	4	5	6	7	8	Total
Charleston	47	53	41	53	42	51	62	71	420
Deer	29	18	23	27	26	23	23	25	194
Eureka Springs	32	38	38	43	30	28	36	34	279
Green Forest	48	58	51	54	68	72	78	66	495
Pea Ridge	53	37	37	34	56	43	51	42	353
Yellville	55	41	54	54	45	55	50	57	411
TOTAL	264	245	244	265	267	272	300	295	2152

- The average number of teachers at the six treatment schools was 33.3; the average number of teachers at the six control schools was 30.3.

- Expenditure per ADA of treatment and control schools

Treatment Schools	Expenditure Per ADA	Control Schools	Expenditure Per ADA
Elkins	$795	Charleston	$712
Farmington	723	Deer	764
Greenland	838	Eureka Springs	1,013
Prairie Grove	755	Green Forest	756
St. Paul	884	Pea Ridge	719
West Fork	697	Yellville	736

- Average assessed valuation, ADA, and expenditure per ADA

	Average Assessed Valuation	Average ADA	Average Expenditure Per ADA
6 Treatment Schools	$3,583,285	604	$782.00
6 Control Schools	$3,798,705	581	783.50

- The six treatment and six control schools were geographically located in the rural, mountainous area of northwest Arkansas.

- Socioeconomic factors: The occupations of parents from the treatment and control school districts included limited farming, poultry raising, cattle raising, truck and orchard crops, logging, light industry, and service jobs.

- The curriculum of all twelve schools appeared comparable, e.g., nine of the 12 schools used the same reading series.

- The student populations from all 12 schools appear to have comparable exposure to media outside the school. All areas have access to a weekly county paper and in a few of the locations a daily newspaper. All areas can receive at least one clear network TV channel and an educational channel.

Data Collection Procedures. Students in the treatment and control schools were administered the CAT, the Career knowledge Test, and the Orientation to Career Concepts/Worker Activities Scale in late February and March 1977. The instruments were administered by Project CAP staff after they had received special training in administering them, including practice in reading the questions orally to refine their pronunciation, pacing, and manner of administration. Project staff scored all students' responses to the instruments and were responsible for all data analyses.

Evidence of Impact

Data Analyses. Mean posttest differences between treatment and control schools by grade level were analyzed using the *t*-test for independent samples. Tables 1, 2, and 3 included in the Appendix present the means, standard deviations, *t*-values, and significance levels for treatment and control schools on the Career Awareness Test (CAT), the Career Knowledge Test, and the Orientation to Career Concepts/Worker Activities Scale. The results presented in these tables demonstrate that the treatment schools invariably out-performed the control schools by a wide margin on the posttest. On all three instruments, at every grade level, group differences were highly significant.

Evidence that the Effects Are Educationally Meaningful

The evaluation plan used, the data collected and the resulting analyses provide reasonably convincing evidence that Project CAP produced educationally significant results. The treatment and control schools were equivalent on such variables as school population, school staff per student, district expenditure

per ADA, average daily attendance, average assessed valuation, geographic location, socioeconomic factors, curriculum, and exposure to information outside the school. The use of comparable control schools appears to rule out the possibility of explaining the results in terms of other variables such as maturation effects, practice effects, and outside-school experiences. In addition, all mean differences between treatment and control schools exceeded one-third of a standard deviation; in fact, for grades 1-3 the treatment mean scores exceeded the control mean scores by more than one standard deviation on the Career Awareness Test. The large sample that included grades 1-6 and the very high level of statistical significance attained across all grades indicate that the Project CAP goal of significantly increasing students' awareness of careers was achieved.

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education--National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions--projects, products, or practices--have been shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.[1]

In May 1978, the JDRP reviewed Project CAP and approved it for nationwide dissemination.

[1] Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington, D.C.: NIE/DHEW, September 1977.

CONCLUSION

In a rural area of Northwest Arkansas, Project CAP was organized to meet the career awareness needs of students, grades K-8. The high degree of stringency with which the evaluation of the Project CAP program was carried out and the exceptionally strong results provide reasonable assurance that the program is making substantial progress toward meeting those needs. Those school districts with similar rural populations comprised predominantly of Caucasian students may consider adapting the Project CAP program to their local settings, knowing that the program has been demonstrated to be effective in its original locale.

Appendix A

BOSTON MOUNTAINS COOPERATIVE FOR FEDERAL PROGRAMS

CAREER AWARENESS PROGRAM SURVEY
December, 1973

This survey is designed to find out what knowledge students have about career training and job opportunities. Please read each question and mark the appropriate answer.

	Yes	No	Don't Know
1. Do you know what kind of job you plan to work at when you "grow up"?			
2. Will you need to finish high school to get the job you want?			
3. Will you need to take special courses in high school to get the job you want?			
4. Will you need to get training after high school to get the job you plan to do?			
5. Will you need to go to college to get the job you plan to do?			
6. Will you need to take special courses in high school to go to college?			
7. Are there lots of jobs available in the type of work you want to do?			
8. Will you have to move to a different state to work at the job you plan to do?			
9. Do you know how much money you will be making?			
10. Would you like for your school classes to include learning about all kinds of jobs?			
11. Would learning about all kinds of jobs help you make better choices about what you plan to take in high school?			
12. Would learning about all kinds of jobs help you make better decisions about what you plan to do when you "grow up?"			

13. What kind of job do you plan to do?

_____ 1st choice _____ 2nd choice _____ 3rd choice

14. Did you learn about this kind of job from
    ____a. school
    ____b. home
    ____c. books or magazine
    ____d. friends
    ____e. TV
    ____f. other

SOURCE - RESOURCE

AGRI BUSINESS AND NATURAL RESOURCES

1. University of Arkansas Agricultural Experimental Farm
   Dean Glenn Hardy, Dean of Agri
   University of Arkansas
   Agri 205
   Fayetteville, Arkansas 72701
   Bus: 575-2252

   a. Any size group may visit
   b. Willing to speak or demonstrate in the schools
   c. No charge for services
   d. Career information materials but directed toward high school youths
   e. Willing to participate in career developing activities

   Subject:

   a. Agriculture and natural resources

2. Mr. Paul E. Bayley, Dairy Farmer
   Route #1
   Elkins, Arkansas 72727
   443-2786

   a. Prefer medium group, 10-20, to visit dairy
   b. Willing to speak in the schools
   c. No charge for service
   d. Willing to participate in career development activities

   Subjects:

   a. How milk is produced
   b. Managing a dairy
   c. Transportation of milk
   d. How milk is homoginized, bottled and shipped

3. Mr. Clarence J. Longtin, Sheep Farmer, Purebred Breeder
   Route 1 Box 6 (also see Manufacturing)
   West Fork, Arkansas 72774
   Res: 839-3128
   a. Large group, 20+, may visit farm
   b. Willing to speak in the schools
   c. Expenses and grass for sheep (on lawn)
   d. Career information materials may be obtained at County Agents office
   e. Willing to participate in career development activities

   Subjects:
   a. Feeding of sheep
   b. Wool

4. Dr. John L. Meason, Chemistry Instructor
Chemistry Department
University of Arkansas
Fayetteville, Arkansas 72701

a. Medium group, 10-20, may visit University
b. Willing to speak or demonstrate in the school
c. No charge for service
e. Willing to participate in career development activities

Subjects:

a. Research in Nuclear Chemistry and Physics
b. Natural resources
c. Agriculture

5. Carl Rose and Staff
Washington County Agriculture Extension Service
Courthouse Annex
442-9821

Cooperative Extension Service
P.O. Box 1071
Fayetteville, Arkansas

a. Representatives visit classes to tell about home economics or agriculture careers.

ENVIRONMENTAL SCIENTISTS

Today we are concerned with environmental protection. Environmental pollution poses a threat to society. Environmental scientists help us live in our physical environment. These scientists study the history, composition and characteristics of the earth's surface.

Some environmental scientists do research to increase scientific knowledge. Others try and solve the practical problems of pollution. Still others teach in colleges and universities.

There are several types of environmental scientists. Geologists, geophysicists, meteorologists, and oceanographers are considered environmental scientists. We are going to look at the work of the geologist.

Geologists study the structure, composition and history of the earth's crust. Their work helps us locate natural resources. Environmentalists are telling us that we are using up our petroleum sources. Geologists are constantly trying to locate minerals and solid fuels from the earth.

The work of geologists is very important to us. The training they receive is important to them. Persons seeking careers as geologists will need at least a master's degree. Many times a Ph.D. degree is required.

Careers in geology involve a lot of outdoor work. Many times travel is necessary. Travel to distant countries may also be involved in their work.

Employment opportunities for geologists are very favorable. Geologists are employed by federal agencies, particularly the U.S. Geological Survey. Many geologists are employed at colleges and universities.

Geologists earn very high salaries. They usually work many long hours. However, they enjoy their work and feel it is helpful to mankind and the environment.

Earthquakes, Geologists, and Rocks

Geologists study chemical compositions and changes in minerals and rocks. For example, they determine whether underground rocks will bear the weight of a building or structure, or they determine if the building or structure is located in an earthquake-prone area. As you know, earthquakes are a cause of very high death tolls all over the world.

Rocks are important to geologists, but what are rocks? They are simply combinations of minerals. Rocks are classified according to their formation. The study of rock formation is very important.

Rocks are formed by one of three processes: pressure, heat or change. Let's look at each classification.

Sedimentary rock is formed by pressure. When the earth was very young, the seas crept onto the land and receded over and over again.

Each time this happened, a layer of mud and sand settled out and remained behind. As one layer after another built up, the lower layers began to compress. This pressure formed rock. Rock which is layered is called sedimentary rock.

Molten material is found within the earth. Molten material that cools and hardens forms igneous rocks. This is rock formed by heat. Igneous rocks usually are found well below the surface of the earth.

Metamorphic rocks are those which have been changed by heat and pressure from igneous or sedimentary rocks. These rocks were formed during the mountain-forming period when the bending of the earth's crust caused the tremendous heat and pressure necessary to change rocks. Metamorphic rocks are usually layered or banded.

Skim the following questions. Then look again at the preceding paragraphs skimming over the material. Now, fill in the blanks answering each question.

1._____are a cause of very high death tolls.

2._____determine if buildings or structures are an an earthquake-prone area.

3. Rocks are _____.

4. Rocks are classified according to their _____ _____.

5. Rocks are formed by three different processes. List these processes.

_____

_____

_____

6. List three types of rocks.

_____

_____

_____

7. _____ rock is formed by pressure.

8. _____ rock is formed by heat.

9. _____ rock is formed by change.

10. Molten material is found within the _____.

11. _____ rocks usually are found well below the surface of the earth.

12. _____ rocks are usually layered or banded.

CAREER QUIZ

Fill in the blanks with the missing words from the list below. Not all of the words listed will be used.

environmental scientists or geologists, employment, high, Ph.D., low, U.S. Geological Survey, Geological Rock Association, master's, outdoor, indoor

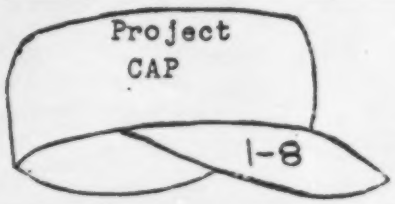
1. _____ study the structure, composition and history of the earth's crust.
2. Geologists need at least a _____ degree.
3. Careers in geology involve a lot of _____ work.
4. _____ opportunities for geologists are favorable.
5. Geologists may work for a Federal agency called the _____.
6. Geologists earn a very _____ salary.

"Better Schools Through Cooperation"

Boston Mountains Cooperative
For Federal Programs

E. P. Rothrock, Coordinator
Drawer 188
Prairie Grove, Arkansas 72753

CAP Newsletter Vol II No. October 1975



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This month's newsletter is devoted to the experiences of pupils and teachers in CAP related activities.

FIELD TRIP

Stars, ccmputers, indian relics! Farmington third graders in Mrs. Boynton's and Mrs. Brown's rooms explored these realms when they took a field trip to the University of Arkansas. Dr. Sharrah at the planetarium showed the star formations and explained their movements. All will be looking for the red "Christmas Star" (Jupiter) which will be seen in the east in December. An archaeologist, specializing in early Indian studies, kept the children fascinated with arrowheads, pottery, weapons and other relics found in this area.

At the computer center, Dr. Ashmore showed the children how computers work, including the "brain". What a lot of wires anc circuits! The children got an insight into several exciting career possibilities and couldn't decide whether they wanted to be computer scientist, or operators, astronomers or archaeologists.

Mrs. Boynton
Mrs. Brown
Farmington, Arkansas

HEALTH CAREERS

Mrs. Davis, 2nd. grade teacher at Farmington Elementary School, encouraged her students to bring in information about the various careers they were studing in Project CAP's Health Cluster.

Here are some of the things the students shared with the class:

Cathy Gregg told about her father. "My daddy is a nurse at the V.A. Hospital. He helps the doctors take care of people. He works 8 hours, sometimes days and sometimes nights. When he goes to work at 7:00 A.M. he gets off at 4:00 P.M.

Michael Gabbard reported about his grandmother, "My grandmother works at the City Hospital, she works a long day".

Kelly Bertschy's mother is a nurse. Kelly says it is hard work but her mother likes it.

Mike Center knew someone who worked in the surgery rooms at Washington Regional Medical Center. He said sometimes they work nights and sometimes they work days.

Mrs. Davis said they learned that where one works affects the salary they receive as does the previous training and experience.

Mrs. Davis
Farmington, Arkansas

The Sixth Grade at St. Paul

The sixth graders at St. Paul are an enthusiastic group of young people. To provide a relevant learning situation for them we are using the Career Awareness Program as a long range teaching unit. There are three basic stages of this unit. First the students choose a career. Next, they must apply for a position in the career they have chosen. Hopefully, after completing this stage we will be able to dramatize a real life situation in which they must find a place to live, pay their bills, and choose how to spend and save their earnings.

The opportunities for teaching communication skills in this unit are endless. Since the students must fill out social security card applications, make job applications, and actually have dramatized interviews, they must use reading, listening, speaking, and writing skills.

One of the most rewarding aspects of this unit however is the interest and participation of the students. All of the students have chosen a job they want to apply for. Most of them have a newspaper ad that corresponds with their particular job. So far in our classroom we have nurses, secretaries, truck drivers, deisel mechanics, policeman, rodeo rider, and a basketball coach. We also have an egg grader, plumber and a carpenter.

We progress as interest and enthusiasim dictates. Schedules or plans are flexible and can be altered without upset. For example our initial plan was to select and apply for a job using the Job Application Packet. Then we were going to use the Career Packets on the different occupational clusters. After selecting a job and filling out social security card applications, we decided to introduce the packets on Health Careers. This was a great idea because some of the students decided they were more interested in that field after they were exposed to it.

Our time schedule is flexible also. Sometimes more time is spent than usual. For example when we were using the Registered Nurse Packet, some students learned how to take blood pressure, pulse, and respiration. They were so eager to participate that more than one hour was spent in the classroom, plus 45 minutes of recess time. Other days, however we may spend very little time. The unit can be stopped or started at any time.

Very little teacher preparation time is required to teach this unit. CAP provides packets, newspapers, and ideas to help. The interest of the students provides additional incentive for the teacher to plan with them in the classroom. We hope that stage three,-the dramatization of a real-life situation, will be carried out. Communication skills as well as math, social, and economic skills will be taught in a meaningful way.

Dolly Walker, Teacher

A First Grade at Greenland

The class was engaged in a rather fascinating discussion about Dental Technicians and how important it was that they be able to "tell time" in order to know how long to let a mold for false teeth set. We were starting a unit of Health Occupations and at the same time learning how to tell time. Unfortunately. the discussion about technicians and their needing to know how to tell time went by the wayside. because the "Tooth Fairy" seemed more interesting they thought. The teacher. trying desperately to regain the gist of the lesson, injected the fact that the tooth fairy also had to know how to tell time or otherwise he or she would not know when to bring the money for lost baby teeth. This seemed to delight the class and gave an even greater desire to learn about telling time that day.

Mrs. Carolyn Boone, Teacher

Appendix E

The Means, Standard Deviations, t-Values, and Significance Levels for Treatment and Control Schools on Three Tests

Table 1

Career Awareness Test (CAT)

Grade Level	N	Mean	SD	t-value
1: Treatment	292	12.4	2.7	19.79**
1: Control	264	8.3	2.2	
2: Treatment	268	17.3	4.3	13.44**
2: Control	245	12.9	3.1	
3: Treatment	289	19.0	3.9	12.28**
3: Control	244	15.0	3.6	
4: Treatment	276	14.8	3.4	6.05**
4: Control	265	13.0	3.1	
5: Treatment	303	16.9	3.9	8.16**
5: Control	267	14.4	3.2	
6: Treatment	298	17.1	3.8	6.64**
6: Control	272	15.1	3.3	
7: Treatment	291	15.6	4.3	6.64**
7: Control	300	13.4	3.9	
8: Treatment	337	17.6	10.1	4.84**
8: Control	295	14.6	3.8	

**significant at the .001 level

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Table 2

Career Knowledge Test

Grade Level	N	Mean	SD	t-value
1: Treatment	292	20.9	4.0	12.38**
1: Control	264	16.5	4.5	
2: Treatment	268	20.5	4.3	4.88**
2: Control	245	18.6	4.3	
3: Treatment	289	22.4	3.8	4.89**
3: Control	244	20.8	3.6	

**significant at the .001 level

Table 3

Orientation to Career Concepts: Worker Activities Scale

Grade Level	N	Mean	SD	t-value
4: Treatment	276	9.6	3.0	5.84**
4: Control	265	8.1	2.9	
5: Treatment	303	10.5	3.0	5.31**
5: Control	267	9.2	2.9	
6: Treatment	298	11.4	3.1	7.30**
6: Control	272	9.4	3.3	
7: Treatment	291	12.8	3.3	2.80*
7: Control	300	12.1	2.8	
8: Treatment	337	13.5	5.7	2.80*
8: Control	295	12.5	3.1	

**significant at the .001 level
*significant at the .005 level